

TITLE OF THE INVENTION:

Please amend the title of the invention to: --TEMPORALLY DISCRETE DYNAMIC FUZZY LOGIC CONTROL ELEMENTS--.

IN THE SPECIFICATION:

Please replace the original specification with the concurrently filed Substitute Specification.

IN THE CLAIMS:

✓
Please cancel claims 1-6.

✓
Please add claims 7-18 as follows:

1 ~~7~~. A control unit comprising:

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a temporally discrete dynamic fuzzy logic control element having at least one integrating transfer characteristic and/or differentiating transfer characteristic and comprising a memory device to store a current internal state variable of said fuzzy logic control element, said current internal state variable based on fuzzy logic conclusions.

2 ~~8~~. A control unit as in claim ~~1~~¹⁷, wherein said fuzzy logic control element updates the current internal state variable based on an input variable and the current internal state variable and generates an output variable such that said fuzzy logic control element has at least one integrating transfer characteristic and/or differentiating transfer characteristic.

^{17/12}
3/9. A control unit as in claim 9, wherein said fuzzy logic control element further comprises at least one first static fuzzy logic device to update the current internal state variable of the fuzzy logic control element based on fuzzy logic conclusions.

4/10. A control unit as in claim ¹7, wherein said fuzzy logic control element further comprises at least one second static fuzzy logic device to update an output variable of the fuzzy logic control element based on fuzzy logic conclusions.

5/11. A control unit as in claim ¹7, wherein said current internal state variable of said fuzzy logic control element is based on a processing state in at least one succession of processing states, and wherein said fuzzy logic control element changes from one processing state to another processing state in temporally discrete fashion upon updating of said current internal state variable.

6/12. A method of regulating a technical process comprising utilizing the control unit of claim ¹⁷1.

7/13. A control unit comprising:
means for combining a guide variable and a feedback variable to obtain an input variable; and
a fuzzy logic control element comprising:
a first fuzzy logic device receiving said input variable from said means for combining and a current internal state variable of said fuzzy logic control element and

generating a next internal state variable of said fuzzy logic control element on a temporally discrete basis based on fuzzy logic and at least one integrating transfer characteristic and/or differentiating transfer characteristic; and

a memory device receiving said next internal state variable of said fuzzy logic control element from said first fuzzy logic device and providing said current internal state variable of said fuzzy logic control element to said first fuzzy logic device.

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⁸ 14. A control unit as in claim ⁷ 13, wherein said first fuzzy logic device comprises processing states identifying a transition from said current internal state variable to said next internal state variable, wherein said transition is based on fuzzy logic conclusions and occurs on a temporally discrete basis, wherein said current internal state variable corresponds to one of said processing states, wherein said next internal state variable corresponds to said one or another of said processing states.

⁹ 15. A control unit as in claim ⁷ 13, wherein fuzzy logic control element further comprises:

a second fuzzy logic device receiving said input variable from said means for combining and said current internal state variable of said fuzzy logic control element from said memory device and generating an output variable for said control unit based on fuzzy logic and at least one integrating transfer characteristic and/or differentiating transfer characteristic.

¹⁰ 16. A method for controlling comprising the steps of:

receiving a guide variable;
receiving a feedback variable;
combining said guide variable and said feedback variable to obtain an input variable;
generating a next internal state variable on a temporally discrete basis based on said input variable, a current internal state variable, fuzzy logic, and at least one integrating transfer characteristic and/or differentiating transfer characteristic;
storing said next internal state variable; and
providing said current internal state variable based on stored next internal state variable;
generating an output variable for controlling based on said current internal state variable.

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contd.

11 17. A method as in claim 16, wherein the step of generating said next internal state variable is based on processing states identifying a transition from said current internal state variable to said next internal state variable, wherein said transition is based on fuzzy logic conclusions and occurs on a temporally discrete basis, wherein said current internal state variable corresponds to one of said processing states, wherein said next internal state variable corresponds to said one or another of said processing states.

12 18. A method as in claim 16, wherein the step generating said output variable for controlling is based on said current internal state variable and said input variable.--

IN THE ABSTRACT:

Please replace the original Abstract with the Abstract provided with the concurrently filed Substitute Specification.

IN THE DRAWINGS:

A concurrently filed Request for Approval of Drawing Changes requests that Figures 1-4, 7b, and 7c be amended as shown in red ink. The approval of the Examiner is requested.

Additionally, a concurrently filed Submission of Corrected Formal Drawings submits corrected formal drawings according to the concurrently filed Request for Approval of Drawing Changes.

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